

METEOR OF MAY 7, 1916, IN EASTERN MISSISSIPPI.

By J. H. JAQUA, Observer.

[Dated: Weather Bureau, Meridian, Miss., June 16, 1916.]

An unusually brilliant meteor moved in a southwesterly direction over western Alabama and eastern Mississippi at about 9:05 p. m. on May 7, 1916. Most witnesses who have made reports of their observations of the phenomenon agree that the meteor was first seen in a position about 45° to 60° above the horizon, and that it was visible a few seconds, probably not more than 10, disappearing in a southerly to westerly direction, below the horizon.

In color it is described as having been a brilliant yellowish white, likened in intensity by some observers to several full moons, by others comparable with a powerful automobile light or a searchlight. The illumination was sufficient to make objects visible as in bright sunlight.

Some people state that the meteor consisted of two spherical portions, which burst about the time it vanished. It is also stated by a few witnesses that sounds produced by the explosion (?) were heard. A luminous train accompanied the meteor.

Usually the details obtainable for the preparation of an article on a certain meteor must be taken from the reports of witnesses, who, as a rule, are not prepared or able to give descriptions from which accurate elevations may be deduced, but in the case of the meteor of May 7 the particularly interesting and valuable description given below has been furnished by Mr. Jesse G. Whitfield, a civil engineer of Demopolis, Ala.

METEOR OF MAY 7, 1916, AT DEMOPOLIS, ALA.¹

By JESSE G. WHITFIELD, C. E.

[Dated: Demopolis, Ala., May 13, 1916.]

I see in the local paper [Demopolis Times] that the meteor which passed this latitude on the night of May 7 at about 9:05 p. m., Central Time² was also seen by residents of Mobile, Ala.

Leaving out the rising and setting of the sun, and the movement of the other heavenly bodies, to which we are now become so accustomed and at which we have ceased to wonder, I can only describe the passage of this meteor as the most magnificent of all the phenomena that I have as yet seen.

I live in the country, and on Sunday night last [May 7, 1916] was returning home from a walk to my neighbor's, when suddenly³ the whole world seemed illuminated as if another sun had sprung into existence. I was walking toward the east, and stopped abruptly, not realizing what had happened. The body of the meteor first appeared to me in a due easterly direction, and at an elevation of 60° above the horizon (30° east of the zenith). It had an apparent diameter of perhaps one-fourth or one-third that of the moon, and in its wake was a tail of diminishing brightness some 10° in length. The meteor disappeared behind the top of a tree that stood about half a mile from me—a tree that I knew and could again identify. Without moving in my tracks, I dug a hole in the ground with my pocketknife, and next morning, with an instrument, found the bearing of the tree

from the hole to be S. 20° W. Probably 10 seconds elapsed from the time of its passing my own latitude to the time of its disappearance at or near the horizon. I made the instrumental observation, hoping that some one in a widely different longitude might also note the direction of the meteor, when it appeared and when it disappeared, thus furnishing data that would enable us to approximate its distance. The meteor passed here at 5 minutes past 9 Central Time, within three minutes of the truth. My position, north latitude $32^{\circ} 29'$, west longitude $87^{\circ} 52'$, is $\frac{1}{4}$ mile north, and $\frac{1}{4}$ mile west, of the southeast corner of section 34, township 18 north, and range 2 east (St. Stephen's survey). My position as given in latitude and longitude would be of interest to those who may have observed the meteor in its passage over the Gulf, supposing that it got that far away.

The diameter of an incandescent body that could have illuminated Sumter County and Marengo County, and probably a belt even wider, as I suppose this must have done, would have been considerable. If we assume that the meteor was 40 miles above the earth when I first saw it in an easterly direction, its distance from me must have been 46 miles, and this being true, if its apparent diameter were one-fourth that of the moon, its actual diameter must have been 570 feet. Now, it is probable that a globe of white-hot matter much inferior to this in size, and at the distance assumed, could have been sufficient to give such intense illumination to a considerable portion of the State of Alabama.

If the assumed distance be correct, the meteor must have passed directly overhead (through the zenith) at a point some 6 miles east of Uniontown, or about halfway between Demopolis and Selma, and when in that part of its trajectory, to an observer in Selma, it must have appeared in the west 60° above the horizon. If a person in Selma or in Montgomery could have observed the meteor as it crossed this latitude, its distance could be known with an approximation proportional to his ability to estimate its angle of elevation, provided, of course, that the distance was not very much greater than that of my assumption. * * *

While the matter constituting the tail of the meteor may have been visible before it lost its brilliancy by cooling, it was probably not possible to distinguish between this and the optical illusion caused by the rapid motion of a bright object. When a firebrand is waved rapidly it appears as a ribbon of fire, and so the meteor would apparently leave behind it a band of light. The impression made on the retina of the eye is not instantly effaced, but remains for an appreciable time. * * *

Mr. B. A. Wooten, of the department of physics at Auburn, Ala., writes me that he saw this meteor, but does not give any estimate of its position. His statement to the effect that it gave no sensible illumination at Auburn, coupled with my own observations, only proves that the meteor passed between me and Auburn, and very much nearer to me than to Auburn.

I have been trying to form some proper notion of the angular velocity of this meteor. I devised a pendulum that would beat seconds, and accustomed myself to counting synchronously with its oscillations. Then with two straight laths nailed together, so as to open out like a V, I made three trials with results of 16° , $18\frac{1}{2}^{\circ}$, and $21\frac{1}{2}^{\circ}$, respectively, the mean of these trials being 18.8° . The mean of another series of trials was 20° . Of course, these were the crudest sort of observations. All I could do was to sight along the laths and open them out to the angle that it seemed must have been described by the meteor in an estimated one second. But if we assume

¹ Extracts from the Demopolis (Ala.) Times of May 18, 1916, supplemented by private advices from the author.

² Mr. Whitfield also calls this "clock time of the 90th Meridian."

³ This statement might be modified somewhat, for the light from the meteor did not flash up to its full brightness instantaneously as if a great electric light had been turned on, but gradually increased through perhaps two seconds, and this gradually increasing illumination caused me to stop walking and to look at the heavens. I would say that the illumination was at its height a little after the meteor passed my latitude.—J. G. W., letter of July 7, 1916.